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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

First Named Inventor	: Ramesh Sundaram et al.	Appeal No.
Appln. No.:	10/015,045	
Filed	: December 11, 2001	Group Art Unit: 2856
For	: GLIDE HEADS AND METHODS FOR MAKING GLIDE HEADS	Examiner: Thomas Noland
Docket No.:	S01.12-0881	

TRANSMITTAL OF APPEAL BRIEF
(PATENT APPLICATION - 37 C.F.R. § 192)

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

I HEREBY CERTIFY THAT THIS PAPER IS BEING SENT BY U.S. MAIL, FIRST CLASS, TO THE COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450, THIS

15 DAY OF June, 2004

Deirdre C Kvale
PATENT ATTORNEY

Sir:

Transmitted herewith in triplicate is the Appeal Brief in this application with respect to the Notice of Appeal filed on April 19, 2004.

FEE STATUS

[] Small entity status under 37 C.F.R. §§ 1.9 and 1.27 is established by a verified statement.

FEE FOR FILING APPEAL BRIEF

Pursuant to 37 C.F.R. 1.17(c) the fee for filing the Appeal Brief is $330.00.

The Director is authorized to charge any additional fees associated with this paper or credit any overpayment to Deposit Account No. 23-1123. A duplicate copy of this communication is enclosed.

Respectfully submitted,

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Deudre Kvale
PATENT ATTORNEY

Sir:

This is an appeal from an Office Action dated January 16, 2004 in which claims 11-16, 18-21, 23, and 26 were finally rejected.

REAL PARTY IN INTEREST

Seagate Technology LLC, a corporation organized under the laws of the state of California, and having offices at 920 Disc Drive, Scotts Valley, CA 95067-0360, has acquired the entire right, title and interest in and to the invention, the application, and any and all patents to be obtained therefor, as set forth in the Assignment filed with the patent application and recorded on Reel 9533, frame 0538.

RELATED APPEALS AND INTERFERENCES

There are no known related appeals or interferences which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

STATUS OF THE CLAIMS

I. Total number of claims in the application.

Claims in the application are: 1-27

II. Status of all the claims.

A.	Claims cancelled:	1-10
B.	Claims withdrawn but not cancelled:	none
C.	Claims pending:	11-27
D.	Claims allowed:	17,22, 24-25
E.	Claims rejected:	11-16, 18-21, 23, 26
F.	Claims objected:	27

III. Claims on appeal

The claims on appeal are: 11-16, 18-21, 23, 26

STATUS OF AMENDMENTS

There are no unentered Amendments After Final.

SUMMARY OF INVENTION

Glide heads are used to check for defects on discs or media of a data storage device. (Applicants' Specification - Background of the Invention). Glide heads fly over a disc surface at a predetermined glide height or fly height to detect contact or asperities on the disc surface. The glide head flies over the disc surface via air flow along an air bearing surface of the glide head.

As described in Applicants' specification and as shown in FIG. 1, air bearing surfaces (for example rails 104) are contoured on a very smooth surface 102 of a wafer 100 to provide a more consistent surface "suitable for performing asperity testing under more exacting tolerances". (Applicants' specification, page 5, lines 5 -13 and page 6, line 33-page 7, line 9). Contact detection or glide transducers are formed or mounted at the wafer level on the air bearing surface or surface opposite to the air bearing surface. (Applicants' specification, page 6, lines 20-29).

Thereafter as illustrated in FIG. 2, glide heads are cut from the wafer 100 along slicing lines 106. (Applicants' specification, page 7, lines 9-11).

In an embodiment illustrated in FIG. 4, the glide head 140 includes a PZT transducer which can be mounted to the top surface 150 of the wafer prior to slicing the wafer into individual glide heads. (Applicants' specification, page 7, lines 31- 33). In the embodiment shown in FIG. 8, thermal transducers 180 are fabricated on a smooth surface 302 of the wafer 304. (Applicants' specification, page 8, line 33- page 9, line 5 and page 11, lines 21-28) In the illustrated embodiment, air bearing surfaces are contoured on the smooth surface 302 of the wafer 304. (Applicants' specification, page 7, lines 12-15, page 10, lines 3-8, and lines 13-19).

Glide heads are attached to a suspension 262 as illustrated in FIG. 9 which is mounted to a test stand of a detection apparatus 400 for glide testing discs. (Applicants' specification, page 12, lines 28-32). As described, the fabricated glide head provides a relatively smooth and flat surface to reduce variability of the glide head fly height for glide test operations. As described, the glide transducer and air bearing surfaces are fabricated at the wafer level to limit mounting and demounting steps and increase processing efficiency. (Applicants' specification, page 10, lines 12-17 and page 6, lines 29-32).

ISSUES

I. Whether claims 11, 14, 19-20, 23 and 26 are anticipated by Voldman, U.S. Patent No. 5,559.051.

II. Whether claims 12-13, 15-16, 18 and 21 are obvious over Voldman in view of Smith, U.S. Patent No. 6,112,401.

III. Whether claims 12-13, 15-16, 18 and 23 are obvious over Voldman in view of Aylwin, U.S. Patent NO. 5,452,166.

GROUPING OF CLAIMS

The following groupings of claims are made solely in the interest of consolidating issues and expediting this Appeal. No grouping of claims is intended to be nor should be interpreted as

being any form of admission or a statement as to the scope or obviousness of any limitation.

Group I - Claims 11-16, 18, 21, 23 and 26.

Group II - Claim 19, and

Group III - Claim 20.

ARGUMENT

I. Claims 11, 14, 19-20, 23 and 26 are patentable over Voldman, U.S. Patent No. 5,559,051

Claim 11 and dependent claims 14, 23 and 26 recite *inter alia* a wafer comprising a **glide head array** including a plurality of rows and a plurality of columns of glide portions having **air bearing surfaces formed on a surface of the wafer** and an array of **glide transducers** on the **wafer** to form a plurality of glide heads. Claim 19 recites *inter alia* a glide head formed from a wafer comprising a plurality of rows and a plurality of columns of glide portions having a **plurality of air bearing surfaces formed on a surface of the wafer** and an **array of glide transducers** on the **wafer** and the glide head formed from one of said glide portions. Claim 20 recites a detection system comprising the glide head of claim 19.

Claims 11, 14, 19-20, 23 and 26 were rejected under 35 U.S.C. § 102(b) as being anticipated by Voldman on the basis that "[t]he processing of the wafer would appear to inherently form the air bearing surfaces while the rows and columns are still on the wafer absent any express assertion to the contrary".

a. The standard that the subject matter is inherently disclosed absent an express assertion to the contrary is legally incorrect.

To reject claims under 35 U.S.C. § 102 based upon inherency, the extrinsic evidence "must make clear that the missing descriptive matter is necessarily present in the thing described in the reference and that it would be so recognized by persons of ordinary skill" *Continental Can Co. v Monsanto Co.*, 948 F.2d

1264, 1268, 20 U.S.P.Q.2d 1746, 1749 (Fed. Cir. 1991). "Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a give set of circumstances is not sufficient" *Id* at 1269, 20 U.S.P.Q.2d at 1749 (quoting *In re Oelrich,* 666 F.2d 578, 581, 212 U.S.C.Q. 323, 326 (C.C.P.A. 1981). Rejection based upon an absence of an express assertion to the contrary without evidence that the missing subject matter is present in the reference does not met the legal standard required for establishing inherency. Accordingly, the Office Action fails to establish a *prima facie* basis to reject the claims.

b. Voldman expressly discloses the contrary that the air bearing surfaces are ***not*** *formed while still on the wafer*

FIGS. 7-9 and 19-21 of Voldman disclose fabrication of a magnetoresistive head where transducers are formed on the wafer and an air bearing surface is formed on rows 110, 132, 154 or bars as shown in FIGS. 8 and 20 sliced from the wafer which is expressly contrary to the assertion that the air bearing surfaces are formed on the wafer as set forth in the Office Action. See Voldman Col. 2, lines 28-43. For example, in Voldman, the wafer is sliced into rows 110 so that the transducer is formed along a trailing edge of the slider 58 as shown in FIG. 3 and each row cut from the wafer is "then lapped which forms an air bearing surface for each slider". (Voldman, Col. 2, lines 40-43). Thus Voldman expressly discloses that the air bearing surfaces are not formed on the wafer in contrast to the claimed subject matter and accordingly withdrawal of the rejection is respectfully requested.

Claim 19 recites a glide head formed from a wafer comprising a plurality of rows and a plurality of columns of glide portions having a plurality of air bearing surfaces formed on a surface of the wafer and an array of glide transducers on the wafer and the

glide head formed from one of said glide portions. Voldman discloses an MR or recording head and does not teach or suggest a glide head as claimed to detect defects or asperities on a disc surface.

Claim 20 is dependent upon claim 19 and recites a detection system for detecting asperities comprising the glide head of claim 19 supported on an armature operable to position the glide head over a disc surface for glide testing and including a transducer on the glide head to detect interactions between the glide head and the disc surface. Voldman does not teach or suggested the claimed detection system.

II. Claims 12-13, 15-16, 18 and 21 are patentable over the combination of Voldman and Smith, U.S. Patent No. 6,112,401.

Claims 12-13, 15-16, 18 and 21 were rejected under 35 U.S.C. § 103 as being unpatentable over Voldman in view of Smith. Claims 12-13, 15-16, 18 and 21 are dependent upon claim 11 which recites *inter alia* a **glide head array** including a plurality of rows and a plurality of columns of glide portions having **air bearing surfaces formed on a surface of the wafer** and an **array of glide transducers** on the **wafer** to form a plurality of glide heads. As previously discussed, Voldman does not teach the subject mater of claim 11 nor dependent claims 12-13, 15-16, 18 and 21.

Additionally, the further combination of Smith does not teach the subject matter of claim 11 nor dependent claims 12-13, 15-16, 18 and 21. Smith discloses fabrication of a glide head including the step of fabricating air bearing surfaces to form an intermediate production blank having an unpolished air bearing surface **and an outer sidewall surface at a pheripheral edge of the air bearing surface**. The unpolished air bearing surface is lapped to form a polished air bearing surface and a region of the pheripheral edge is also lapped to form a sidewall margin area as

illustrated in FIG. 10 of Smith (Smith, Col.9, lines 47-65).

Smith does not disclose fabrication of a plurality of air bearing surfaces or glide heads on a wafer as claimed since Smith does not discloses the step of cutting the production piece or intermediate production blank after the bearing surface is formed to form the sidewall surface at the pheripheral edge as implemented for wafer fabrication of air bearing surfaces as illustrated in FIGS. 2-3 of Applicants' specification.

III. Claims 12-13, 15-16, 18 and 23 are patentable over the combination of Voldman and Aylwin, U.S. Patent No. 5,452,166.

Claims 12-13, 15-16, 18 and 23 were rejected under 35 U.S.C. § 103 as being unpatentable over Voldman in view of Aylwin on the basis of Col. 6, line 44 - Col 8, line 7 of Aylwin. Claims 12-13, 15-16, 18 and 23 are dependent upon claim 11 which recites *inter alia* a **glide head array** including a plurality of rows and a plurality of columns of glide portions having **air bearing surfaces formed on a surface of the wafer** and an array of glide transducers on the wafer to form a plurality of glide heads.

As previously discussed, Voldman does not teach the subject matter of claim 11 nor dependent claims 12-13, 15-16, 18 and 23. Furthermore, Aylwin discloses fabrication of a thin film magnetic head or MR head and not a glide head. FIG. 9 of Aylwin expressly discloses fabrication steps including depositing sensors on a wafer 910, slicing wafers into rows 920 and forming air bearing surfaces on rows 930 sliced from the wafer 910.

"The wafer is sliced into rows and lapped to yield a plurality of recessed pole thin film magnetic recording heads 100. Lapping of the air bearing face 110 forms a slider or air bearing surface". (Aylwin, Col. 8, lines 48-52). Thus, Aylwin does not teach fabrication of a glide head array having air bearing surfaces formed on a surface of the wafer nor an array of glide transducers formed on a surface of the wafer as claimed.

Thus, the combination of Voldman and Aylwin fails to teach the claimed subject matter of dependent claims 12-13, 15-16, 18 and 23.

Based upon the foregoing, Applicants respectfully request reconsideration and allowance of claims 11-16, 18-21, 23, 26 and objected claim 27.

Respectfully submitted,

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Appendix A

1-10. (cancelled)

11. A wafer comprising a glide head array including a plurality of rows and a plurality of columns of glide portions having air bearing surfaces formed on a surface of the wafer and an array of glide transducers on the wafer to form a plurality of glide heads.

12. The wafer of claim 11 wherein the array of air bearing surfaces comprise rails.

13. The wafer of claim 11 wherein said surface of the wafer has a flatness less than about 3 μm.

14. The wafer of claim 11 wherein the wafer comprises aluminum oxide/titanium carbide.

15. The wafer of claim 11 wherein the surface of the wafer has a peak-to-valley flatness less than about 1 μinch.

16. The wafer of claim 11 wherein the surface of the wafer has a surface flatness less than about 1 μinch.

17. A wafer comprising a glide head array including a plurality of rows and a plurality of columns of glide portions having air bearing surfaces formed on a surface of the wafer and an array of glide transducers on the wafer to form a plurality of glide heads wherein the array of glide transducers are mounted on a wafer surface opposite to the surface of the wafer having the air bearing surfaces formed thereon.

18. The wafer of claim 11 wherein the surface of the wafer has a

flatness less than about 0.5 μinch.

19. A glide head formed from the a wafer comprising a plurality of rows and a plurality of columns of glide portions having a plurality of air bearing surfaces formed on a surface of the wafer and an array of glide transducers on the wafer and the glide head formed from one of said glide portions.

20. A detection system for detecting asperities comprising the glide head of claim 19 supported on an armature operable to position the glide head over a disc surface for glide testing and including a transducer on the glide head to detect interactions between the glide head and the disc surface.

21. The wafer of claim 11 where the array of glide transducers includes an array of piezoelectric transducers.

22. The wafer of claim 17 wherein the glide head array includes an array of wing portions and the array of glide transducers are formed thereon.

23. The wafer of claim 11 wherein the array of glide transducers are formed on the surface of the wafer having the air bearing surfaces formed thereon.

24. A wafer comprising a glide head array including a plurality of rows and a plurality of columns of glide portions having air bearing surfaces formed on a surface of the wafer and an array of glide transducers on the wafer to form a plurality of glide heads wherein the array of glide transducers includes an array of thermal transducers formed on a surface of the wafer having the air bearing surfaces formed thereon.

25. The wafer of claim 24 wherein the thermal transducers of the array of thermal transducers are formed of magnetoresistive sensors.

26. The wafer of claim 11 wherein the air bearing surfaces of the plurality of rows and the plurality of columns of glide portions are formed using one of or a combination of saw cutting,

27. The wafer of claim 11 wherein the glide head array includes an array of wing portions and the array of glide transducers are formed thereon.